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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,985	09/20/2001	Shekhar Ambe	108339-00030	9886

32294 7590 02/06/2006

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EXAMINER	
SHAH, CHIRAG G	

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/955,985	AMBE ET AL.	
	Examiner	Art Unit	
	Chirag G. Shah	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/4/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 6-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *4 and 5* is/are allowed.

6)☒ Claim(s) *1-3 and 6-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1/4/06 have been fully considered but they are not persuasive.

Regarding claims 1 and 6, Applicants submit that Coden fails to remodify the header only when the egress port is one of a series of data ports of a particular switch of a series of switches. Examiner respectfully disagrees and redirects Applicant to Coden reference, specifically to col. 9, lines 35 to 53 and figure 1. Coden discloses that a counter is appended to the packet at its originating ring switch. Conventionally counter appended to the packet occurs in the header of the packet. Upon appending the packet at the originating switch, each subsequent ring switch (in a series of ring switches) in the network that processes the packet increments the counter for the packet, this respectfully clearly indicates of remodifying the header of the incoming packet when the egress port is one of a series of data ports of a particular switch of the series of switches. Figure 1 clearly illustrates ring switches 104-1 through 104-N are in a series with egress port being in a series of data ports of a particular switch.

Applicants further argue that the Office Action refers to Coden attaching or incrementing a counter, but such a function occurs every time a packet is received by a ring switch, instead of such a functionality, Coden describes attaching the counter or identification number to all incoming packets. Examiner respectfully disagrees and redirects Applicant to Coden reference, specifically to col. 9, lines 35 to 53 and figure 1. In the respective sections, it is clearly mentioned that in a series of ring switches, that a counter is originally appended to the packet at

the originating ring switch and thereafter each subsequent ring switch in a series of ring switches that processes the packet increments the counter of the packet. In other words based on col. 9, lines 35-53, each subsequent ring switch in the series of switches (see fig. 1) increments the counter for the packet clearly indicates that remodification of the packet header at a subsequent series of switch occurs. When each subsequence switch in the series of ring switch processes the packet, increasing the counter remodifies the header of the packet.

Regarding claim 3 and 8, Applicants traverse the obviousness rejection and submit that the cited references of Coden, Breyer et al. and Jennings et al., either alone or in combination, fail to disclose or suggest all the features of any of the presently pending claim. Examiner respectfully disagrees and based on the limitations addressed in the Office Action and well as the limitations presented in the above arguments with respect to the argued features of the claim, respectfully asserts that all the features of the pending claims are indeed met. Thus, claims 1-3 and 6-8 respectfully are not in condition for allowance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2 and 6-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Coden (U.S. Patent No. 6,154,462) in view of Breyer et al. (Switched, Fast and Gigabit Ethernet", XP002199222"), hereinafter referred as Breyer.

Regarding claims 1 and 6, Coden discloses in **fig.** 1 of a method of handling data packets in a series of network switches **[network switches connected in series 104-1 to 104-M via ring network as in fig. 1]**, said method comprising the steps of:

receiving (at port within ring switch) an incoming data packet at a data port of a first switch of said series of network switches **[as disclosed in fig. 1; col. 3, line 35-37; col. 9, lines 19-35 and col. 10, lines 46-51, the first ring interface reads the source address as it enters port of the first ring]**;

resolving (within the ring switch) a stack tag from a header of said incoming data packet **[as disclosed in col. 9, lines 35-53,** ***when a packet enters a ring switch an identification number (a stack count is set) is appended, pre-pended or added to the packet. Thus,*** **each subsequent ring resolves (a stack) tag from a header of the incoming packet that includes an identification number with a counter received from a previous switch.** ***The packet header also includes a destination address (as suggested col. 9, lines 21-23) and a source address (as suggested in col. 9, ling 59-65). Each ring which has processed the packet increments the counter for the packet and each subsequent ring switch resolve the stack tag for the header of the incoming packet having identification number counter along with source and destination address.*** **The (stack tag) having destination address received from a header of the incoming data packet is used for determining by comparing with address tables where to switch the data packet as suggested in col. 11, lines 9-16]**;

determining (within the ring switch) whether an incoming data packet is a unicast packet, a multicast packet or an IP multicast packet **[as disclosed in col. 3, lines 40-56**

and col. 11, lines 32-44, ***a determination is made whether the port is a unicast, broadcast, multicast with higher level TCP/IP protocol. Note: a determination of a broadcast or a multicast packet is made upon consulting the memory tables and the location of the terminal is unkown***]; and

to search the address resolution lookup and layer three IP lookup tables to find an egress port for said incoming data packet [**as disclosed in col. 11, lines 9-16 and fig.2,** ***the method determines whether the destination address of the incoming data packet is in the address tables for any port of the ring switch. If the destination address is in one of the at least one address tables, the method switches the data packet from the ring-in port to the port (egress) indicated in the address table, resolving the destination address with the (ring egress) port. This clearly establishes that the switch of fig. 1 is configured to search the address tables for performing an address resolution lookup based on the corresponding destination address to find an egress port***];

(each subsequent ring switch of fig. 1) modifies the header of said incoming packet [**as disclosed in col. 9, lines 35-53,** ***when a packet enters a ring switch from a port, an identification number of the ring switch is appended, pre-pended or added to the packet***];

(a ring switch of fig. 1) forward the incoming data packet to at least a second switch of the series of network switches [**as disclosed in col. 6, lines 1-6 and see fig. 1,** ***data packet received at the at least one ring port that are not destined for a network device associated with any of the at least one local ports of the ring switch are switched/forwarded to another ring switch coupled to the at least one ring port based***

on the address tables], on a stacked connection operating at a first data rate [**as disclosed in col. 8, lines 9-34,** ***Ethernet switches may operate on 1, 10, 100 Mbps or any future data rate***], based on stack tag and the egress port [***stack tag includes destination address and identification number (for the ring switch) corresponding to incoming packet as disclosed in*** **col. 9, lines 35-53 and col. 11, lines 10-16** ***and egress port is determined based on looking up the address tables for the destination address of the incoming packet for forwarding to the (egress port) as disclosed in*** **col. 11, lines 10-16].**

(each subsequent ring switch of fig. 1) remodifying the header of said incoming packet when the egress port is one of a series of data ports of a particular switch of said series of switches [**as disclosed in col. 9, lines 35-53, when a packet enters a ring switch from a local port, an identification number for the ring switch is appended, pre-pended or added to the packet; an identification number for the ring is added to the packet when packets are received at the ring interface of a ring switch,** ***Note: col. 9, lines 45-53 clearly discloses that a counter is appended to the packet at its originating ring switch, each subsequent ring switch in the network that processes the packet remodifies the packet header by incrementing the counter for the packet]***

In other words based on col. 9, lines 35-53, each subsequent ring switch in the series of switches (see fig. 1) increments the counter for the packet clearly indicates that remodification of the packet header at a subsequent series of switch occurs. When each subsequence switch in the series of ring switch processes the packet, increasing the counter remodifies the header of the packet. This clearly addresses that the remodification of the header of the incoming packet occurs only (since fig. 1 illustrates ring switches 104-1 through 104-N are in a series with egress

port being in a series of data ports of a particular switch) when the egress port is one of a series of data ports of a particular switch of the series of switches.

Coden, explicitly fails to disclose of one of the address table being a layer three IP lookup tables.

Breyer discloses of Layer 3 switches on page 187, which are also known as routing switches or switch routers among other names. Breyer discloses on **page 193, fig. 5.17**, that upon receiving a frame, the switch having routing features strips off the layer to header to obtain a layer 3 packet, identifies IP protocol and **performs an address resolution lookup based on a layer 3 IP lookup table to find the egress port**. Breyer further discloses in the respective figure that upon determining location of the port, the header of the packet is modified to change the IP address and add back layer 2 header using routing table MAC addresses and then forwarding the packet to the (egress) port.

Therefore, it would have been obvious to one of ordinary skills in the art to modify the teachings of Coden's invention to include the teachings of the layer 3 switches configurable to perform layer 3 IP lookup tables as taught by Breyer. **One is motivated as such in order to route IP protocol and forward frames at wire speed rates such as 10, 100 or 1000Mbps with minimal latencies** *(Breyer, page 194)*.

Regarding claims 2 and 7, Coden discloses in **col. 9, lines 35-45**, wherein said step of modifying the header of said incoming packet comprises adding or removing a stack tag to or from said header to be evaluated by said particular switch **[as disclosed in col. 9, lines 35-45, an identification number for the ring is added to the packet when packets are received at the**

ring interface of a ring switch, ***Note further: col. 9, lines 45-53 clearly discloses that a counter is appended to the packet at its originating ring switch, each subsequent ring switch in the network that processes the packet by incrementing the counter for the packet establishing that adding/incrementing the counter tag to the header of the packet is evaluated by a particular switch*** **].**

4. Claims 3 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Coden in view of Breyer et al., hereinafter referred as Breyer as applied to claims 1, 2, 6 and 7 above, and further in view of Jennings et al. (U.S. Patent No. 6,425,015), hereinafter referred as Jennings.

Regarding claims 3 and 8, Coden in view of Breyer discloses all the limitations with respect to claims 1 and 6 except the steps of: (means) resolving a mirroring field of said incoming data packet, (means) forwarding said incoming data packet to a mirroring port based on said mirroring.

Jennings discloses in col. 3, lines 33-39 of Port mirroring achieved between ports on separate devices in a stack (series) of communication devices. Jennings discloses in fig. 2A of the formation of a data packet with Ethernet protocol including DA (destination address) and SA (source address), which identify the intended destination of the packet and its originator. **Jennings clearly discloses in fig. 2B of adding an extra field RAP (roving analysis port bit) to each communication packet transmitted via the cascade. A control means 216 within the communication device (such as a switch) controls the adding and removing of the RAP field from each incoming packet indicating resolving a mirror field of the incoming data packet.**

Jennings discloses in **col. 6, lines 9-15** of using the additional field to indicate that a cascade received packet is to be sent/**forwarded to the mirror port**.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to modify the teachings of Coden in view of Breyer to include the limitation of inserting a mirror field within the header of an incoming packet and forwarding the received packet to a mirror port as taught by Jennings. **One is motivated as implementing such in order to monitor traffic (such as volume of traffic on specific port or actual activities of a user of a particular port) passing through specific port or ports in the network** *(Jennings, col. 2, lines 3-14)*.

Allowable Subject Matter

5. Claims 4-5 allowed.

Regarding claim 4, Prior Art fails to disclose wherein the first data port interface is configured to communicate with a second switch at the first data rate and the second data rate interface is configured to communicate with a third switch at the second data rate and the switch is configured to resolve a stack tag from a header of incoming data packet and forwards the incoming data packet to one of the second and third switches based on the resolved stack tag in combination with other limitations set forth in the respective claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G. Shah whose telephone number is 571-272-3144. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cgs
February 3, 2006

Chirag Shah
Patent Examiner, 2664